Data Sheet

Metro Ethernet Customer Premise Equipment: Integrated Services Routers

PRODUCT OVERVIEW

Founded on 20 years of innovation, the Cisco® integrated services routers enable secure, wire-speed delivery of concurrent data, voice, and video services. They transparently integrate advanced technologies, adaptive services, and secure enterprise communications into a single, resilient system – greatly simplifying deployment and management. The routers lower network cost and complexity while providing exceptional investment protection. They feature embedded security processing, significant performance and memory enhancements, and new high-density interfaces that deliver the performance, availability, and reliability required for scaling mission-critical security, IP telephony, business video, network analysis, and Web applications in the most demanding enterprise environments. Built with greatly improved performance over the Cisco 1700, 2600XM, and 3700 Series routers, the Cisco integrated services routers (Figures 1–3) redefine best-in-class enterprise routing with their superior network agility and intelligence.

Figure 1. Cisco 3800 Series Integrated Services Routers

Figure 2. Cisco 2800 Series Integrated Services Routers

Figure 3. Cisco 1841 Integrate Services Router

The Cisco integrated services routers introduce best-in-class routing, security, and voice technologies embedded into the router fabric, making it possible for enterprises to securely deliver concurrent, mission-critical services and applications at wire-speed performance. They extend network capabilities from the corporate headquarters to the branch offices for increased operational efficiencies and end-user productivity. Their advanced adaptability and modularity provide customers with a wide variety of network interfaces and services, including: VPN IP Security (IPsec), intrusion detection, IP communications, integrated switching, business video, URL filtering, Multiprotocol Label Switching (MPLS), application optimization, DSL, ATM access, and serial device aggregation. By consolidating the functions of multiple, separate services into a single, resilient platform that can be easily managed and deployed, Cisco Systems® provides customers with the industry's leading routing platforms for growth and investment protection.

APPLICATIONS

Secure Network Connectivity for Data, Voice, and Video

Security has become a fundamental building block of any network. Routers play an important role in any network defense strategy because security needs to be embedded throughout the network. The Cisco integrated services router portfolio features advanced, integrated end-to-end security for the delivery of converged services and applications. With the Cisco IOS® Software Advanced Security feature set, the integrated services routers provide a robust array of common security features such as a Cisco IOS Firewall, intrusion prevention, IPsec VPN, advanced application inspection and control, Secure Shell (SSH) Protocol Version 2.0, and Simple Network Management Protocol Version 3 (SNMPv3) in one secure solution set. Additionally, with security functions integrated directly into the router, the Cisco integrated services routers can provide unique, intelligent security solutions that other security devices cannot, such as network admissions control (NAC) for antivirus defense; Voice and Video Enabled VPN (V^3PN) for quality-of-service (QoS) enforcement when combining voice, video, and VPN; and Dynamic Multipoint VPN (DMVPN) and Easy VPN for enabling more scalable and manageable VPN networks. In addition, Cisco offers a range of security-acceleration hardware such as intrusion-prevention network modules and advanced integration modules (AIM) for encryption, making the Cisco integrated services routers an ideal choice for branch offices seeking a robust and adaptable security solution.

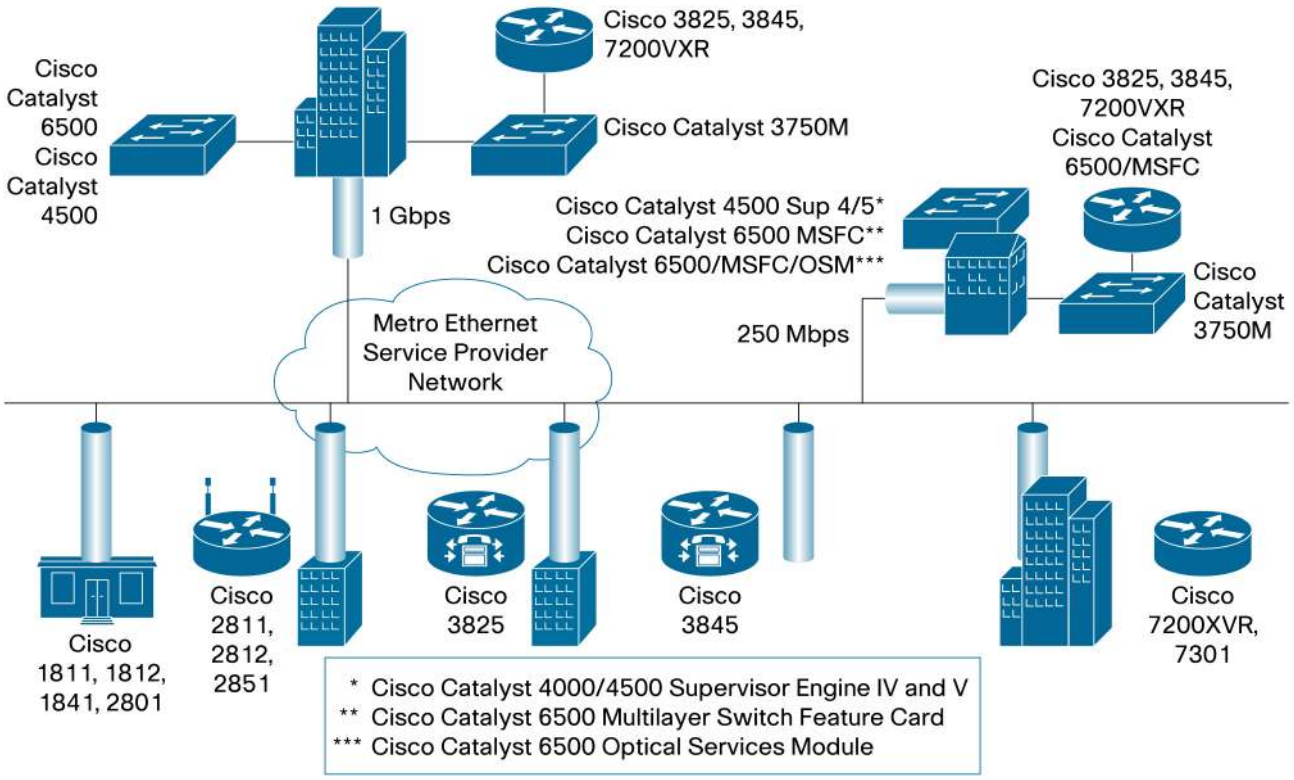
Integrated Services

With the unique architecture of the Cisco integrated services routers, customers can now securely deploy IP communications with traditional IP routing while leaving interface and module slots available for additional advanced services. With the optional integration of a wide array of services modules, the Cisco 1800, 2800, and 3800 Series Integrated Services Routers allow you to easily integrate the functions of standalone network appliances and components into the chassis themselves. Many of these modules, such as the Cisco network analysis module (NAM), Cisco voicemail module, Cisco intrusion detection module, and Cisco content engine module, have embedded processors and hard drives that allow them to run largely independently of the router while allowing management from a single management interface. This flexibility greatly expands the potential applications of the Cisco integrated services router platform beyond traditional routing while still maintaining the benefits of integration. These benefits include ease of management, lower capital expenditures (CapEx) and operating expenses (OpEx), and faster deployment.

The Cisco integrated services router portfolio may be positioned in the following manner (Figure 4) based on service and performance needs. Figure 5 provides an example deployment scenario.

Figure 4. Metro Ethernet Positioning of Cisco Integrated Services Routers

Figure 5. IP Multiservice Metro Ethernet Deployment Example with Integrated Services Routers as CPE



KEY FEATURES AND BENEFITS FOR METRO ETHERNET CPE

The Cisco integrated services routers are ideal as Metro Ethernet customer premises equipment (CPE) for service provider deployments because of the wide range of voice, security, video, and advanced services that they support. These services make it possible for service providers to offer additional value to their enterprise customers, beyond simple Ethernet connectivity.

Key Cisco IOS Software features can be integrated directly on the Cisco 1800, 2800, and 3800 Series Integrated Services Routers. These features include: IP Multicast, Optimized Edge Routing (OER), intrusion detection system (IDS), intrusion prevention system (IPS), QoS, network-based application recognition (NBAR), IP service-level agreements (SLAs), Layer 2 and 3 MPLS, Layer 2 Tunneling Protocol Version 3 (L2TPv3), and NetFlow, as well as advanced services modules such as Cisco content engine modules, network analysis modules, Circuit Emulation over IP (CEoIP) modules, and Cisco Unity® Express modules.

The following key benefits are provided by the Cisco integrated services router portfolio:

- Two onboard LAN interfaces integrated on every router with either Fast Ethernet or Gigabit Ethernet options
- Small Form-Factor Pluggable (SFP) port available on Cisco 3800 Series Integrated Services Routers
- Cisco modules supporting higher-density LAN requirements, including: 4- and 9-port high-speed WLAN interface cards (HWIC) with Cisco EtherSwitch® technology, 16- and 36-port EtherSwitch network modules, the new 16- and 24-port EtherSwitch service modules, 2-port fully routed LAN/WAN combination network modules, and single-port Gigabit Ethernet HWIC or network module
- Support for any media connectivity: traditional connections, low-speed synchronous or asynchronous, T1/E1, DSL broadband, T1/E1 ATM, DS-3, and OC-3
- Enhanced security: firewall, IPsec, IDS, security ACLs, URL filtering

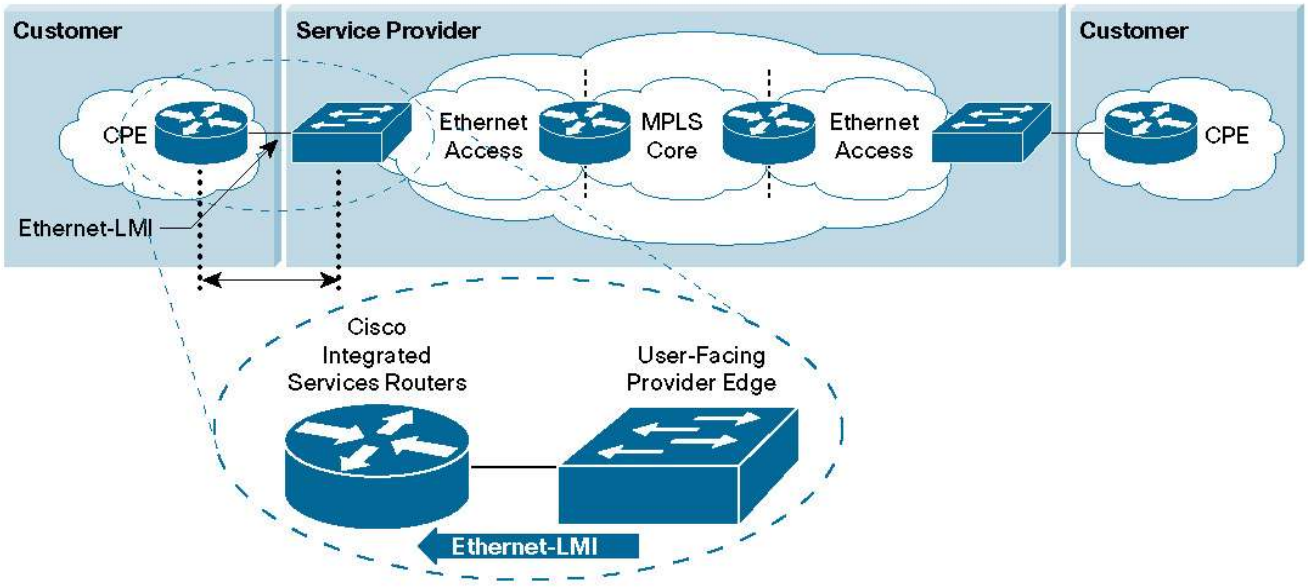
- Full range of routing protocol functionality: Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Routing Information Protocol (RIP), Border Gateway Protocol (BGP), Optimized Edge Routing (OER)
- MPLS Label Edge Routing and customer edge functionality: Layer 3 VPNs, Layer 2 Any Transport over Multiprotocol Label Switching (AToM) pseudowires, Multi Virtual Route Forwarding (Multi-VRF)
- WAN optimization features: QoS, NBAR, NetFlow, IP SLA, Compressed Real-Time Transport Protocol (CRTP), Layer 2 and 3 compression, caching
- 802.1P Class of Service, traffic shaping, and rate-limiting
- Backup connectivity: analog and ISDN dial, broadband
- Multiservice capabilities: IP telephony and voice mail, voice gateway, gatekeeper, V^3PN
- Service modules for additional applications: application acceleration, content distribution, URL filtering, network analysis, voice mail, intrusion prevention, etc.

To enhance Ethernet access on the Cisco integrated services router portfolio, standards-based features are implemented for operations, administration, and maintenance (OAM). The following enhancements are available on the Ethernet access ports on the integrated services routers using Cisco IOS Software:

- Metro Ethernet Forum (MEF) 16: Ethernet Local Management Interface (E-LMI) customer edge functionality
- IEEE 802.1ag: Connectivity Fault Management (CFM) OAM

Ethernet LMI (MEF 16) Functionality

Figure 6. Ethernet LMI Functionality

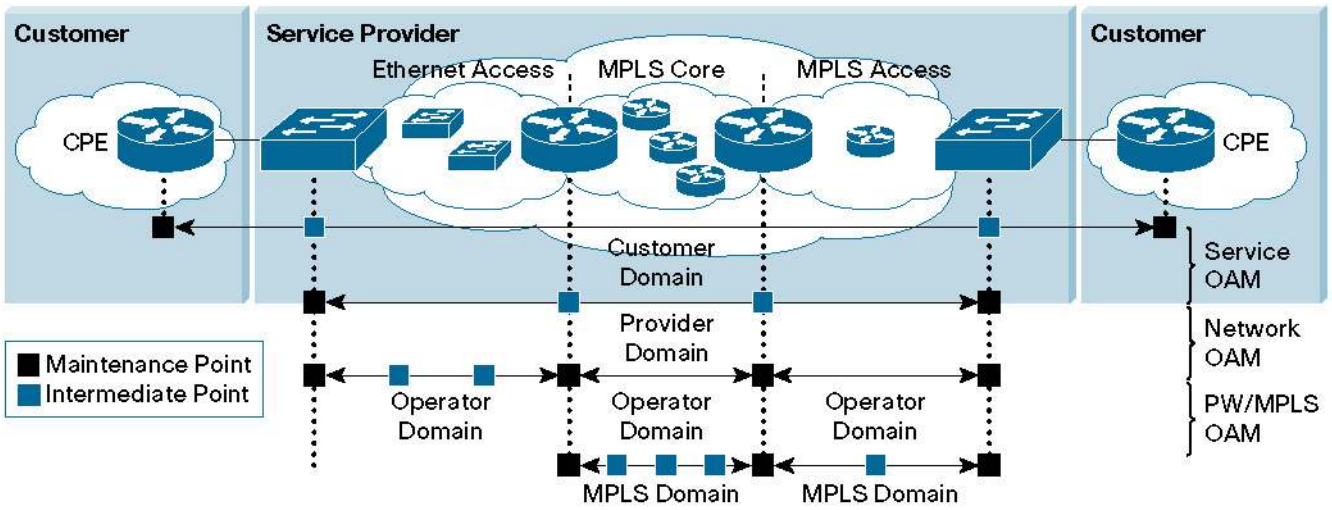


Ethernet LMI on the CPE router provides the following capabilities:

- Processes automated notification from the user-facing provider edge to configure the customer edge based on EVCs and bandwidth profiles
- Layer 2 connectivity management offers feature parity with Frame Relay LMI

Connectivity Fault Management (IEEE 802.1ag) Functionality

Figure 7. Ethernet OAM and Connectivity Fault Management



Ethernet OAM and Connectivity Fault Management on the CPE router provide the following capabilities:

- End-to-end continuity check
- Layer 2 traceroute
- Layer 2 ping (loopback)

FEATURE AVAILABILITY

Table 1. Feature Availability

Feature	Platform Support	Availability
Ethernet LMI	Cisco 1841, 2801, 2811, 2821, 2851, 3825, 3845	Q2 CY2006
Connectivity Fault Management	Cisco 1841, 2801, 2811, 2821, 2851, 3825, 3845	Q3 CY2006

PRODUCT SPECIFICATIONS

For technical specifications on integrated services routers, visit the Cisco Router Product Page.

ORDERING INFORMATION

To place an order, visit the Cisco Ordering Home Page. Table 2 lists the integrated services router platforms positioned as Metro Ethernet CPE.

Table 2. Ordering Information

Product Name	Part Numbers
Cisco 3800 Series Integrated Services Routers	CISCO3825, CISCO3845
Cisco 2800 Series Integrated Services Routers	CISCO2801, CISCO2811, CISCO2821, CISCO2851
Cisco 1800 Series Integrated Services Routers	CISCO1811, CISCO1812, CISCO1841

TO DOWNLOAD THE SOFTWARE

Visit the Cisco Software Center to download Cisco IOS Software. Table 3 lists Cisco IOS Software images that support Metro Ethernet CPE features.

Table 3. Cisco IOS Software Feature Sets Supporting Ethernet Access Features

Cisco IOS Software Feature Set	Part Number						
	3845	3825	2851	2821	2811	2801	1841
SP Services	S384SPSK9	S382SPSK9	S28NSPSK9			S28SPSK9	S184SPSK9
Enterprise Services	S384ESK9	S382ESK9	S28NESK9			S28ESK9	S184ESK9
Advance IP Services	S384AISK9	S382AISK9	S28NAISK9			S28AISK9	S184AISK9
Advance Enterprise Services	S384AESK9	S382AESK9	S28NAESK9			S28AESK9	S184AESK9

SERVICE AND SUPPORT

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you to protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, see Cisco Technical Support Services or Cisco Advanced Services.

FOR MORE INFORMATION

For more information about the Cisco integrated services router portfolio, please visit: http://www.cisco.com/en/US/products/hw/routers/index.html or contact your local account representative.

Corporate Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 526-4100

European Headquarters
Cisco Systems International BV
Haarlerbergpark
Haarlerbergweg 13-19
1101 CH Amsterdam
The Netherlands
www-europe.cisco.com
Tel: 31 0 20 357 1000
Fax: 31 0 20 357 1100

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
www.cisco.com
Tel: 408 526-7660
Fax: 408 527-0883

Asia Pacific Headquarters
Cisco Systems, Inc.
168 Robinson Road
#28-01 Capital Tower
Singapore 068912
www.cisco.com
Tel: +65 6317 7777
Fax: +65 6317 7799

Cisco Systems has more than 200 offices in the following countries and regions. Addresses, phone numbers, and fax numbers are listed on the Cisco.com Website at www.cisco.com/go/offices.

Argentina • Australia • Austria • Belgium • Brazil • Bulgaria • Canada • Chile • China PRC • Colombia • Costa Rica • Croatia • Cyprus • Czech Republic Denmark • Dubai, UAE • Finland • France • Germany • Greece • Hong Kong SAR • Hungary • India • Indonesia • Ireland • Israel • Italy Japan • Korea • Luxembourg • Malaysia • Mexico • The Netherlands • New Zealand • Norway • Peru • Philippines • Poland • Portugal Puerto Rico • Romania • Russia • Saudi Arabia • Scotland • Singapore • Slovakia • Slovenia • South Africa • Spain • Sweden Switzerland • Taiwan • Thailand • Turkey • Ukraine • United Kingdom • United States • Venezuela • Vietnam • Zimbabwe

Printed in USA C78-365118-00 09/06